

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of : Toth et al.  
Serial No. : 10/605,789  
Filed : October 27, 2003  
For : Method and Apparatus of Radiographic Imaging with an Energy Beam Tailored for a Subject to be Scanned  
Group Art No. : 2882  
Examiner : Kao, C.

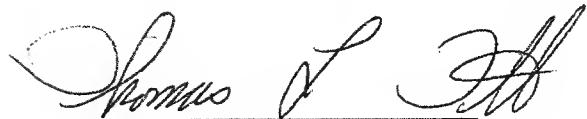
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DECLARATION OF THOMAS L. TOTH UNDER 37 C.F.R. §1.132

I, Thomas L. Toth, being duly sworn, depose and say:

1. I am a co-inventor in the above-referenced patent application.
2. I have worked in the computed tomography industry and, specifically, the x-ray tube, x-ray filter, and x-ray detector industry for twenty-five (25) years. I am a patentee of fifty-two (52) United States patents in the field of computed tomography imaging and componentry of computed tomography and other radiographic imaging systems.
3. I have reviewed the presently pending claims in the above-referenced patent application.
4. The claimed orientation of a pair of x-ray attenuating filters having a body, a tail, and a curved portion connecting the body and the tail and wherein the curved portions of each filter face an x-ray source reduces filter scatter relative to that taught and/or suggested by the art of record thereby improving image quality relative to the filter orientation suggested by the art of record. It was found, when considering a detector cell with scatter collimation plates aimed at an x-ray focal spot, that the acceptance angle of the detector cell saw more filter surface area if the curved portions of the filter faced the x-ray source. This was found to result in the detector receiving a greater amount of un-attenuated scatter from the surface of the filter compared to a filter arrangement where the curved portion of the filter faced the detector. Attached as exhibit A is a presentation illustrating the above advantages.

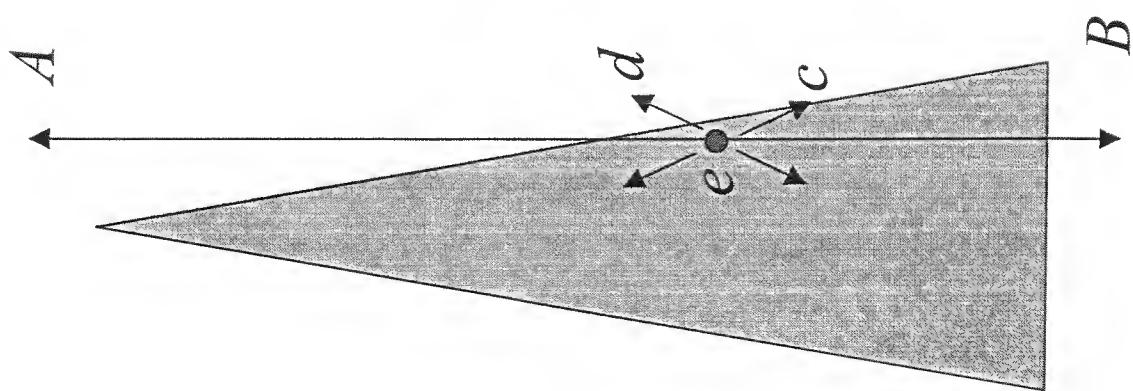
5. That the statements made herein are of my own knowledge and are true and made on information and belief that are believed to be true. I acknowledge that any willful false statements and the like made herein are punishable by fine or imprisonment, or both, and may jeopardize the validity of the application or any patent issuing thereon.



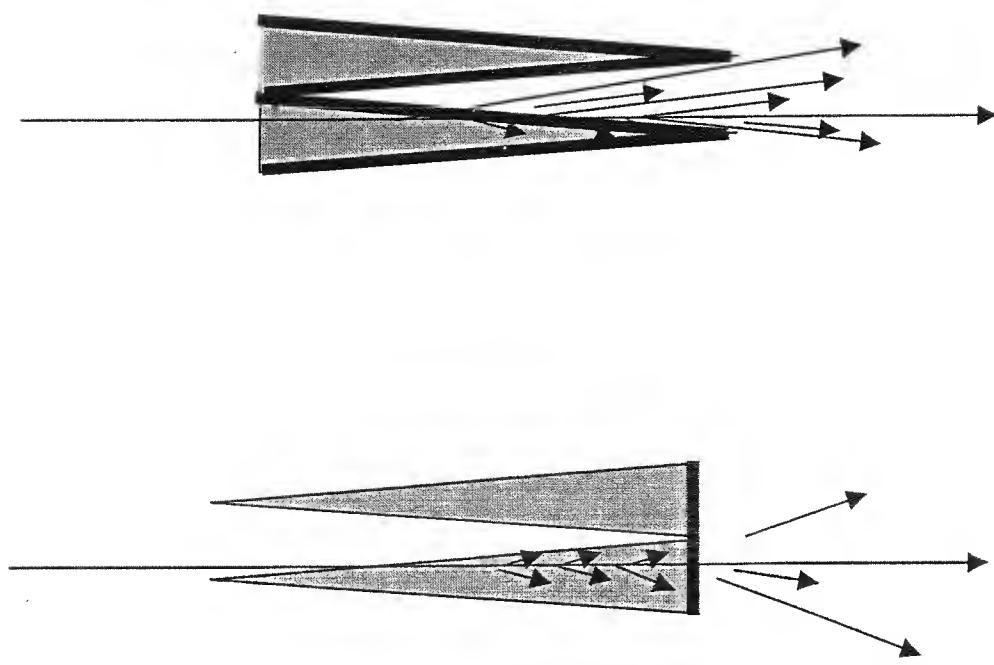
Thomas L. Toth

Date: 12/13/2005

For an X-ray interaction with matter at  $e$ , the scatter  $d$  toward a detector on side  $A$  is greater than scatter  $c$  toward a detector on side  $B$  since the path length for self absorption is longer for scatter  $c$



More  
Scattered  
radiation is  
self  
absorbed  
since  
scatter path  
lengths in  
detector  
direction  
are longer



Scattered  
radiation has  
shorter paths in  
the detector  
direction; hence  
less self  
absorption and  
more detected  
scatter

Primary radiation is identical for each case since  
primary attenuation paths are identical